

CLAIMS

What is claimed is:

1. A device for linearly moving a useful mass, comprising:
 - at least one spindle;
 - at least one drive rotating the at least one spindle;
 - a first spindle nut coupled with the useful mass and moving the useful mass in a first direction; and
 - a second spindle nut coupled with a compensating mass and moving the compensating mass synchronously with the useful mass in a second direction opposite to the first direction, so that a momentum of the useful mass is compensated by a momentum of the compensating mass.
2. The device of claim 1, wherein the at least one spindle comprises a single spindle having two threaded sections with opposite leads, with a first of the two sections having a pitch that is greater than a pitch of the second section, and with the first spindle nut coupled to the first section and the second spindle nut coupled to the second section, wherein the useful mass and the compensating mass are commonly moved on the single spindle.

3. The device of claim 1, wherein the at least one spindle comprises two spindles collinearly connected with each other by a mechanical coupling element, each of the two spindles driven by a separate one of the at least one drive, with the first spindle nut coupled to a first of the two spindles and the second spindle nut coupled to the second spindle.
4. A device for linearly moving a useful mass, comprising:
 - at least one toothed rack;
 - at least one pinion engaging with the toothed rack;
 - at least one drive rotatably driving the at least one pinion;
 - a first of the at least one pinion coupled with the useful mass; and
 - a second of the at least one pinion coupled with a compensating mass and moving the compensating mass synchronously with the useful mass in a second direction opposite to the first direction, so that a momentum of the useful mass is compensated by a momentum of the compensating mass.
5. The device of claim 4, wherein the at least one rack comprises a single rack, and wherein the first pinion has a greater diameter than the second pinion, each of the first and second pinion driven by a separate one of the at least one drive.

6. The device of claim 4, wherein the at least one rack comprises two racks, and wherein said first pinion has a greater diameter than the second pinion, said first and second pinion driven by a common one of the at least one drive.
7. The device of claim 4, wherein the at least one rack comprises two racks having different tooth spacings, wherein the second pinion engages with the rack having a smaller tooth spacing and the first pinion engages with the rack having a larger tooth spacing, said first and second pinions driven by a common one of the at least one drive.